

Appl. No. 10/672,084
Amdt. Dated Jan. 5, 2005
Reply to Office Action of October 5, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (original): An extender for use between two connectors, comprising:
a frame having a body portion and two receiving ports at opposite ends thereof adapted for respectively receiving said two connectors; and
a circuit board attached to the body portion of the frame, the circuit board having conductive traces disposed along at least one side thereof and opposite end portions respectively extending into the two receiving ports of the frame.

Claim 2 (original): The extender as described in claim 1, wherein the two receiving ports of the frame are substantially identical.

Claim 3 (original): The extender as described in claim 1, wherein the frame comprises two side portions on opposite sides of the body portion, each side portion having two receiving sections at opposite ends thereof, the pair of receiving sections at the same end of the frame defining said receiving port.

Claim 4 (original): The extender as described in claim 3, wherein the circuit board comprises a pair of shoulders on opposite sides of each end portion, each shoulder abutting against the bottom of a corresponding receiving section of the

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frame.

Claim 5 (original): The extender as described in claim 3, wherein a protrusion is provided in each receiving section of the frame adapted for engagement with a corresponding groove of said connector.

Claim 6 (original): The extender as described in claim 3, wherein a pair of mounting legs is provided at opposite sides of one receiving section of each side portion of the frame adapted for being mounted on a printed circuit board.

Claim 7 (original): The extender as described in claim 1, wherein the conductive traces of the circuit board include a plurality of signal traces and ground traces respectively disposed on opposite sides of the circuit board.

Claim 8 (original): The extender as described in claim 7, further comprising a second circuit board identical to said circuit board, said circuit board and said second circuit board being respectively attached to opposite sides of the body portion of the frame.

Claim 9 (original): The extender as described in claim 8, wherein said circuit board and said second circuit board are respectively attached to opposite sides of the body portion of the frame in such a manner that the signal traces thereof are outwardly exposed.

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Claims 10 (original): An electrical device for electrically interconnecting two printed circuit boards (PCB), comprising:

a first and a second connectors adapted for being respectively mounted on said two PCBs, the first and second connectors having respective first and second contacts received therein; and

an extender located between the first and second connectors, the extender comprising a frame and a circuit board attached to the frame, the frame defining two receiving ports at opposite ends thereof for respectively receiving the first and second connectors therein, the circuit board having conductive traces disposed along at least one side thereof an opposite end portions respectively extending into the two receiving ports of the frame, whereby upon the insertion of the first and second connectors into corresponding receiving ports of the frame, the conductive traces of the circuit board electrically connect with corresponding first and second contacts of the first and second connectors at opposite ends thereof.

Claim 11 (original): The electrical device as described in claim 10, wherein the first and second connectors are identical.

Claim 12 (original): The electrical device as described in claim 11, wherein the frame of the extender includes a body portion and a pair of side portions, each side portions having two substantially identical receiving sections at opposite ends thereof, the pair of receiving sections at the same end of the frame defining said receiving port.

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Claim 13 (original): The electrical device as described in claim 12, wherein the circuit board comprises a pair of shoulders on opposite sides of each end portion, each shoulder abutting against the bottom of a corresponding receiving section of the frame.

Claim 14 (original): The electrical device as described in claim 10, wherein a protrusion is provided in each receiving port of the frame, and each connector defines a groove for engagement with a corresponding protrusion.

Claim 15 (original): The electrical device as described in claim 10, wherein the conductive traces of the circuit board include a plurality of signal traces and ground traces respectively disposed on opposite sides of the circuit board.

Claim 16 (original): The electrical device as described in claim 15, further comprising a second circuit board identical to said circuit board, said circuit board and said second circuit board being respectively attached to opposite sides of the body portion of the frame in such a manner that the signal traces thereof are outwardly exposed.

Claim 17 (original): The electrical device as described in claim 16, wherein the first and second contacts of the respectively first and second connectors include signal and ground contacts arranged in four rows, the signal contacts being arranged in two outer rows and the ground contacts being arranged in two inner rows, the ground contacts having tail portions in a same cross-section of said

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connector abutting against each other.

Claim 18 (currently amended): An electrical system comprising:

a first printed circuit board (PCB) ;

a second PCB parallel to the first PCB;

a first connector mounted on the first PCB, the first connector having a first slot and a plurality of first contacts disposed proximate to the first slot;

a second connector mounted on the second PCB, the second connector having a second slot and a plurality of second contacts disposed proximate to the second slot; and

an extender located between the first and second connectors, the extender comprising a frame and a circuit board attached to the frame, the frame defining two receiving ports at opposite ends thereof for respectively receiving the first and second connectors therein, the circuit board having opposite end portions respectively extending into the first and second slots of the first and second connectors to allow conductive traces disposed thereon to electrically connect with corresponding first and second contacts of the first and second connectors.

Claim 19 (original): The system as described in claim 18, wherein at least one end of said extender is attached to one of said first and second PCBs.

Claim 20 (currently amended) An electrical connection system comprising:

an insulative housing defining two parallel slots along a longitudinal direction thereof;

two rows of passageways located by two sides of each of said slots;

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inner and outer rows of contacts disposed in the corresponding passageways, respectively, by two sides of each of said slots;

the contacts disposed in one inner row and those corresponding ones in another inner row being mechanically and electrically engaged with each other in a transverse direction perpendicular to said longitudinal direction;

two spaced circuit boards respectively downwardly inserted into the corresponding slots and electrically and mechanically engaged with the corresponding contacts; wherein

each of said circuit boards includes an outer face outwardly exposed to an exterior in said transverse direction, and an inner face supportably abutting against a body portion of a frame, said body portion being sandwiched between said two circuit boards; wherein

said frame is fastened to another printed circuit board on which the housing is mounted.

Claim 21 (canceled)